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Nathaniel Ware – Tradable Income-Based Securities (TIBS) as a Mechanism
to Improve the Provision of Services to Disadvantaged Populations

Tradable Income-Based Securities (TIBS) as a Mechanism to Improve the Provision of Services to Disadvantaged Populations

Nat Ware is one of the top six contributors to this year's St. Gallen Wings of Excellence Award. He studies at the University of Oxford and will attend the 47th St. Gallen Symposium as a Leader of Tomorrow.

Nathaniel Ware (UK), Ph.D. Candidate in Economics, University of Oxford



Nat Ware is a social entrepreneur, economist, and international development specialist. He is the Founder/CEO of 180 Degrees Consulting, the world's largest volunteer consultancy with 81 branches across 33 countries and over 5000 consultants. 180 Degrees has provided 2.6 million hours of consulting to 1829 organisations to help them improve and expand their services (www.180dc.org). Nat has won numerous academic awards, including Top Oxford MBA Student, Best Performance in Development Economics at Oxford, and University Medal for Best Academic at Sydney University. He was a Visiting Fellow at Princeton, and lectured a postgraduate course at age 21. He is a Rhodes Scholar, Goldman Sachs Global Leader, WEF Global Shaper, was awarded Best Speech at the World Debating Championships, won the European Venture Capital Competition, was awarded Best All-Rounder at Sydney University (1/40,000 students), has swum the English Channel, has completed an Ironman triathlon, and has given three acclaimed TEDx talks.

Introduction

As refugees are being resettled in the millions, as girls across the Global South struggle to access ten years of high-quality schooling, as indigenous populations continue to endure dramatically different living standards, and as automation leaves millions of working-age people unemployed and in need of retraining, there is one question that should be on everyone's mind: "How can we finance high-quality basic services, such as education, health, sanitation, and housing, to disadvantaged populations at scale?" It is a question that, if answered, could improve the lives of billions worldwide.

The problem is not so much a lack of ideas for how to provide services effectively, but that existing solutions are not scalable based on current financing methods, including financing from individuals, non-profits, investors, and governments.

Limitations of Existing Financing Methods

Individual Financing: Disadvantaged individuals may struggle to finance their own services due to limited credit history, cash flow constraints, lack of familial support, negligible or non-existent savings, and a rational aversi-

on to risk. Also, given a portion of any additional income is captured by the government via taxation, even if aggregate investment benefits exceed costs, individual costs may exceed benefits, making suboptimal investment in oneself rational.

Non-Profit Financing: Many non-profits are effective but non-scalable because they rely predominantly on donations. For example, Darkinjung is an innovative non-profit indigenous school in Australia (Barker, 2016). It has proven effective at bridging the significant educational gap between indigenous and non-indigenous populations, however it relies on over €600,000 per year in donations to educate just 28 students. To replicate Darkinjung for all 11,342 Australian indigenous students would require them to raise €243M annually – an improbable task.

Business Financing: Private investors often struggle to make the provision of high-quality services to low-income populations profitable. Upfront payments are rarely possible. Long-term fixed-repayment options are problematic due to the risk burden on individuals, financial returns accruing beyond the time-horizon required, and high default rates. Microequity arrangements, where individuals pay investors a

certain percentage of their future income separate from taxation, face the challenges of adverse selection, moral hazard, income misreporting, and payment enforcement. Social impact bonds, where governments pay investors if specific social outcomes are achieved, have a capped upside, are costly to negotiate, and are typically based on one social outcome measurement at one point in time, which increases risk and fails to capture all the social impacts of an investment (Fox & Albertson, 2011).

Government Financing: Often a government's primary goal is being re-elected, which corresponds to maximizing the wellbeing of citizens within a short-term time-horizon. Unfortunately, investments in education and preventative healthcare have long-term returns, so there is an incentive to underinvest. Governments may also find it politically difficult to provide high-quality services to disadvantaged groups, especially if this means generating a deficit, using taxpayer money on non-tax-paying refugees, or risking programmatic failure and the perception of waste.

As such, each stakeholder faces challenges in financing and providing high-quality services at scale. In other words, the scale of the problems facing our world demands

solutions that no one stakeholder can supply. What is needed is a new type of public-private partnership.

Ideal Situation

When financing services, one would like to know ex ante which investment is objectively expected to be the most effective, given there are multiple ways to achieve each development outcome. Then, underprivileged populations would ideally receive the highest-quality services in a way that (a) does not cost them anything at anytime, (b) does not require the government to pay, (c) does not rely on donations, and (d) generates profit for investors. Finally, we would want to easily measure the social impact of investments ex post. Is this ideal situation too good to be true? Remarkably, no.

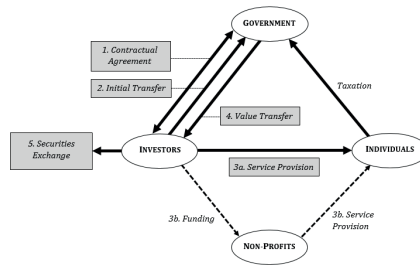
Conceptual Foundation

The following idea arises from a deep understanding of the relationship between, and sequencing of, social value creation and financial value creation. Importantly, in the vast majority of cases where impact investments are made – whether providing education, healthcare, housing, sanitation, or employment – the effect is increased expected lifetime incomes of the individuals receiving those investments. This in turn increases the expected taxation revenue for the government. If this financial value that is subsequently created from social value can be attributed to and appropriated by those that finance investments, then there may be greater incentive and capability to provide high-quality services to underprivileged populations. Such attribution and appropriation is indeed possible.

A New Form of Public-Private Partnership

Suppose there is a new form of public-private partnership whereby the government contracts with private investors to provide specific services to specific disadvantaged individuals. Rather than paying the investors in traditional ways, the government instead issues the investors with tradable income-based securities (TIBS) that pay out every year as a function of the incomes of those receiving services. The right to this flow of payments is tradable, so the price of TIBS is a function of the present discounted value of the expected lifetime incomes of the recipient population.

This new form of public-private partnership can be broken down into five key steps, as shown in the diagram below.



Step 1: Contractual Agreement

The government and an investor agree to a contract with five components that takes the following form: (s, q, N, P_0, a) . s is the specific type of service that must be provided by the investor. q is the quantity to be provided. N refers to the population of individuals who have consented to receive such services. P_0 is an initial lump-sum payment to be made from the investor to the government. a is a proportion of the taxation revenue from the individuals receiving investment, which will be transferred annually by the government to the investor (or whoever owns the TIBS). By way of illustration, the German government could contract with an investor to provide a three-year plumbing training course to 5,000 newly resettled refugees, with an initial payment of €10 million to the German government ($P_{(0)} = €10M$), and 20% of the taxation revenue that is collected from those refugees over their lifetimes to be passed on ($a = 0.2$).

Step 2. Initial Transfer (Business to Government)

Once the contract is agreed, an initial lump-sum (P_0) is transferred from the investor to the government, which can be viewed as the purchase price of the TIBS.

This payment ensures that inaction or low-effort by investors would result in a financial loss. Investors only profit if they provide services of high enough quality so as to increase the expected lifetime incomes of the recipients and thereby increase the stream of transfer payments to the point that it more than offsets the initial transfer. In this way, high effort is incentivized and high quality services are guaranteed.

Step 3. Service Provision (Business to Society)

The investor provides the agreed service to the group of individuals that have consented to such investment. The investor may either (a) provide the service direc-

tly, or (b) work with non-profit providers with surplus capacity and/or existing expertise. Even if the investor contracts with non-profit providers, the investor still has an incentive to select the most effective provider and to hold them accountable for their effort and performance. This is because the investor benefits financially from good social outcomes.

Step 4. Value Transfer (Government to Business)

Every year throughout the lifetimes of the individuals that have received investment, the government passes on to TIBS holders (initially the investors) the agreed portion of taxation revenue it collects from the investment recipients.

In this way, the government utilizes its existing institutional role as the collector and enforcer of taxation payments to act as an intermediary facilitator between individuals and investors. This avoids the need for investors to collect and enforce income-based payments, which would be logistically, financially, and legally problematic.

Step 5. Securities Exchange (Business to Business)

After the completion of the investment, investors may sell the TIBS that they own to others, who then acquire the right to the stream of transfer payments from the government. The market price of the TIBS reflects the present discounted value of expected future government transfers. This ability for investors to sell the right to future streams of payments is of crucial importance. It means the long-term impacts of investments are incorporated into the short-term decision-making calculus of investors.

Analysis of TIBS

This innovative new type of public-private partnership works by combining the best elements of microequity, value capture, auctions, government institutional capabilities, business profit motivation, social impact bonds, and market exchanges, in a new way. It is a truly mutually beneficial partnership.

Importantly, social and financial returns are perfectly aligned. The selfish action for investors to take is also the altruistic action – to generate development outcomes by providing the highest-quality services with the highest level of effort to the target population. It is then that profit is maxim-

zed, because this maximizes the expected lifetime incomes of the population, thereby increasing the price of TIBS. The capacity for investors to sell TIBS allows realised returns within a typical fund time-horizon of 3-10 years, despite investments having longer-term benefits. This makes short-term profit possible, enabling investments to occur in the first place. Given that the potential financial upside for investors is unlimited, and that investment capital far exceeds philanthropic capital (O'Donohoe et al, 2010), investments in achieving development outcomes could increase substantially.

To the extent that investors work with civil society on service provision, this would reduce the time non-profits need to spend raising funds, allowing more time for programmatic improvements. Non-profits could scale up effective services and have a larger impact.

Governments would benefit substantially from this partnership. Rather than spending taxpayer money on services upfront, they receive money upfront. Even after service provision, they do not pay anything. Rather, they simply transfer a portion of the taxation benefit. The taxation transferred only exceeds the initial lump sum when the investment turns out to be more effective than the expected effectiveness of the counterfactual investment (Appendix 1). In other words, governments only have a positive net transfer to investors when they receive a marginal taxation gain that is attributable to those investors. They only pass on what they otherwise would not have had. Importantly, there is no need for the government to guess which providers would be most effective. The providers with the greatest effectiveness expect to be able to increase incomes, taxation revenue, and therefore the price of TIBS the most. Since these providers expect to profit the most, they will bid the highest and win the contract (Appendix 1). In this way, there is truthful revelation of effectiveness. As such, there is no risk to the government - either financially or politically.

Disadvantaged individuals are able to receive the most inherently effective services, with providers exerting the greatest effort, at zero cost. Since individuals simply pay the taxation they would have otherwise paid, there are no additional challenges regarding adverse selection, moral hazard, misreporting, or enforcement.

Discounted Expected Marginal Impact

This type of public-private partnership has an added benefit. It allows for a new market-based measure of social impact. This measure, which we can call DEMI (Discounted Expected Marginal Impact), uses the change in discounted expected lifetime income as a proxy for social impact. The change in discounted expected lifetime income can be determined from changes in the price of TIBS, since government transfers are a monotonically increasing function of income. Formally, the DEMI of an investment can be calculated as follows:

$$DEMI = \pi \left(\frac{1-\gamma}{\gamma} \right)$$

where

$$\pi = \sum_{t=1}^S PDV_{t=0}(\gamma y_t) + \sum_{t=S+1}^{E(n)} PDV_{t=0} E(\gamma y_t) - P_0 - C$$

$$\therefore \pi = \sum_{t=1}^S PDV_{t=0}(\gamma y_t) + P_S - P_0 - C$$

As such, if an investor's profit π is known, then a simple adjustment gives the social impact of the investment. If profit is unknown, it can be calculated by summing the disbursements to date and the current security price P_S , less the initial transfer P_0 and investment cost C .

There are numerous advantages to DEMI over the prevailing approach of Social Return On Investment (SROI). These include its objectivity as a market-based measure, its ability to compare programs covering different social outcomes, its continuous rather than intermittent nature, its explicit focus on marginal rather than absolute social impact, its ability to easily ascertain the counterfactual impact, and the lack of need for separate funding to calculate. Given this, DEMI could improve social impact measurement, helping capital allocation decision-making be more evidence-driven and less emotion-driven.

Conclusion

To address the refugee crisis, the indigenous crisis, and the inevitable automation-induced unemployment crisis, it is essential to positively disrupt the way services are financed and provided. To do this, we must look beyond one-stakeholder solutions to innovative forms of partnerships between business, government, and society. TIBS offers a way to bring together all stakeholders in a mutually beneficial way. It could become the default way to finance essential services worldwide. By aligning

social and financial returns, TIBS gives the invisible hands a new GPS to a better north.

